[007] The problem on which this invention is based is to provide a final drive for driving a vehicle wheel ~~[[which]]~~ . The final drive is compactly designed ~~in axial extension~~ along the axis of the final drive and ~~in which~~ the brake is situated in a wheel rim, only one drive motor is used for each final drive, the reduction gear is sufficiently lubricated and that stands out by a good degree of efficiency.

[010] According to the invention the final drive can be decelerated via a brake located within the axial extension of a wheel rim. It is possible that the wheel rim accommodates a single tire and the brake is placed between the drive motor and the reduction steps. With the reduction steps being disposed directly adjacent, all the moving parts of the toothing can be lubricated by lubricant which is located within a space common with the reduction steps. By virtue of the arrangement of the reduction gear upon the outer side of the wheel, heat can satisfactorily radiate to the environment, resulting in a uniform temperature level. Since the drive motor is not situated coaxially ~~[[to]]~~ with the rotational axis of the wheel, an installation space between the wheel rim and drive motor results and the brake and the actuation mechanism can be placed therein. The wheel bearing is preferably disposed for absorbing the wheel forces radially above the first reduction gear so that the axial installation space needed by the wheel bearing is available ~~[[to]]~~ for the drive motor. Thereby the drive motor can be designed with a maximum active length preferably similar or equal to the diameter of the air gap without the total length of the final drive being enlarged thus increasing the degree of efficiency of the drive motor. By the wheel bearing being situated in a radial direction outside the first reduction step but being located in the radial extension area of the first reduction step, it is possible to connect the wheel hub, one part of the second reduction step and the bearing flange with the wheel bearing to form a compact unit. This compact unit does not need to be separated even when disassembling the wheel drive such that during assembly ~~[[while]]~~, after servicing, the wheel bearing does not need to be readjusted. The second reduction step is preferably designed as a planetary

gear wherein the planet carrier of the planetary gear forms the output, the ring gear is connected with the hub carrier which carries the wheel bearing and the inner central wheel forms the input. It is also possible to design the ring gear as an output. In this case the inner central wheel is driven by the first reduction step which is preferably designed so that the ring gear forms the output and an input pinion forms the input, which is in intermeshing connection with the ring gear and at least two intermediate wheels, and the carrier which holds the intermediate wheel is non-rotatably retained. By the input pinion being in intermeshing connection directly with the ring gear, the drive motor which drives the input pinion can be situated at a maximum distance from the wheel axle with the result of a sufficient installation space for the brake and the actuation mechanism of the brake. With the input pinion having an intermeshing connection with the ring gear and with at least two intermediate wheels, torque is distributed from the input pinion at multiple locations with the consequence of an increase in the service life of the input pinion and the first reduction step can be more compactly designed by reducing the diameter of the wheel bearing. With the housing of the drive motor transmitting the wheel forces and the mounting pad of the drive motor being located in the area of the load active line on a hub carrier, the hub carrier carries the wheel bearing where the wheel forces are introduced. The connecting elements of the supporting parts which absorb the wheel forces can be designed more compactly ~~designed in extension~~, since no additional torque load from a distance to the load active line acts upon the mounting pad and the connecting elements thereof. Hereby the radial extension of the mounting pad of the drive motor housing can be compactly designed on the bearing flange such that a sealing element can be placed between the bearing flange, situated to be non-rotatable and a wheel hub rotating at wheel rotational speed which has less peripheral velocities to overcome due to the small radial extension. The housing of the drive motor can either be fixed to an axle bridge or have supporting places on which fastening elements can be situated for fastening the final drive to the vehicle body. Since

the drive motor is located on the inner side of the wheel, the energy can be favorably supplied. Fins are preferably situated upon the wheel hub such that upon rotation of the wheel hub the medium surrounding the wheel hub is circulated so that the brake and the final drive are cooled. A coolant preferably flows through the housing of the drive motor thus cooling the drive motor and the remaining final drive is also cooled via the mounting pad of the drive motor.

[011] A directly adjacent arrangement of the reduction steps and a brake situated between the reduction steps and the drive motor but within the axial and radial extension of a wheel rim create a final drive for driving a vehicle wheel which stands out by a compact construction, where a drive motor with an optimum degree of efficiency can be used and the reduction steps are sufficiently lubricated.

[014] Fig. 1 is a final drive for driving a vehicle with a double-shear planet carrier; and

[015] Fig. 2 is a second ~~embodiment of a~~ bearing arrangement for the final drive for driving a vehicle with a double-shear planet carrier.

[017] The drive motor 1, not coaxially situated relative to the rotational axis of the wheel 26, is preferably an electric drive motor but may also be a hydraulic or pneumatic drive motor and it drives an input shaft 2 which preferably passes into the housing 4 of the drive motor 1 of a first reduction step 3. The housing 4 of the drive motor is preferably cooled by water and is connected with a hub carrier 5 via connecting elements. The hub carrier 5 is located in the area of a load active line 7 along the mounting pad 6 of the drive motor 1 where the wheel forces act upon the final drive. The ~~active load line 7 defining the~~ longitudinal center of the tire and wheel define the active load line 7. ~~[[By t]]~~ The mounting

pad 6 being situated in the area of the active load line 7~~[[,]]~~ so that none or only small torque loads, generated by the vehicle weight, act upon the elements which connect the hub carrier 5 with the housing 4 of the drive motor 1. The mounting pad 6 can thus have a small dimension along its radial extension, it being possible upon this diameter to place a sealing element 8 between a wheel hub 9 rotating at the rotational speed of the wheel and the hub carrier 5. Since the dimension of the radial extension of the mounting pad 6 is small, the peripheral velocity of the sealing element 8 is also small, which advantageously acts upon the service life of the sealing element 8. The wheel hub 9 is connected with the planet carrier 10 which forms the output of a second reduction gear 11 and with a wheel rim 12. A pair of wheel bearings 13 support the wheel hub 9, the ring gear 14, the second reduction step 11, ~~[[a]]~~ the sealing element 8 and the hub carrier 5 to form a unit which is adjusted only once ~~[[by]]~~ at the plant and remains complete when the final drive is disassembled for servicing. A brake disk 15 is placed over connecting elements on the wheel hub 9 by which the wheel hub 9 can be decelerated. The brake disk 15, which is preferably assembled as a pair of discs fixed together, but can also be assembled as a complete brake disk, in its axial installation position is set apart from the sealing element ~~[[9]]~~ 8 such that a detrimental increase in temperature of the brake disk 15 does not afflict the sealing element ~~[[9]]~~ 8. Fins 16 are preferably situated on the wheel hub 9, such that upon rotation of the wheel hub 9 the medium surrounding the wheel hub 9 is circulated so that the brake disk 15 and the complete final drive are cooled. A bearing 17 ~~[[which]]~~ supports the inner central wheel 18 of the second reduction step 11 upon the planet carrier 10 rotates only at the differential rotational speed between the inner central wheel 18 and the planet carrier 10 whereby the service life of the bearing is increased. The bearing 17 can also be constructed as an axial thrust plate. If the first reduction step 3 and the second reduction step 11 have a helical-cut design, it is possible to design the teeth of the gears so that the bearing 17 is free of forces. The housing 4 of the drive motor 1 is preferably fixed to an axle

bridge 19 but can also be designed having fastening elements for a single-wheel suspension. The first reduction step 3 and the second reduction step 11 are disposed directly adjacent each other thus being surrounded by a common lubricant whereby the lubrication lubricates both reduction steps. The wheel bearings 13 are situated radially further outside the first reduction step 3 and axially in the area of the first reduction step 3. This design creates a very compact final drive. With the wheel bearing 13 being placed radially further outside the first reduction step 3 and tapered roller bearings being preferably used, ~~a table support of~~ the drive wheel [[results]] is supported in a more stable manner. The input shaft 2 preferably has a recess 24 on its exterior surface which delivers lubricant so that the motor bearing 20 remains lubricated. It is also possible to eccentrically design the opening in which the input shaft 2 is situated in order to make available sufficient lubrication to the motor bearing 20. The reduction gears 3 and 11 have teeth that are preferably helically-cut in order to achieve a favorable noise level. The planets 21 of the second reduction gear 11 are floatingly supported whereby the axial length of the final drive is further reduced.

[018] A second embodiment of the invention will now be described with respect to Fig. 2. The embodiment of Fig. 2 differs from the embodiment of Fig. 1 in at least the arrangement of the bearing 17 located between the first and second reduction gears. In the embodiment of Fig. 2, the bearing 17 is located on the outside of the inner central wheel 18, not on the inside as with Fig. 1. A drive motor 1 drives a first reduction step 3, the output of which drives a second reduction step 11 preferably designed as planetary transmission with planet gears 21. The ring gear of the second reduction step 11 can be connected, in a radial direction, with the hub carrier 5 either via a screw connection or via safety rings or pins. A rotational speed sensor 22 is placed between the brake disk 15 and the first reduction gear 3. The brake is actuated with an actuation mechanism 23 which is preferably situated on the side. It is also possible to

actuate the brake via rods extending outside the inner wheel area. The input shaft 2 of the first reduction step 3 has a winding recess, that extends along the axial length of the first reduction step 2, which upon rotation to the input shaft 2 delivers lubrication between the first reductions step 3 and the drive motor 1.